TPOL Hardware Fall 2019 Checkup



TPOL supplies

Nick found all of the TPOL supplies and consolidated the items in one location

Spares

- Three Swan preamp boxes
- Three functional filter boards (2 from ASU 1 from JLab)
- Two blank filter boards
- 1 blank board for distribution box



Location of TPOL supplies



Tool box







Signal check

Checked each channel for signal

- Typical result shown below
- All channels included at end of this presentation





Baseline and noise check

- Baseline fluctuation is typically a few mV and noise envelope about +/- 5 mV
- Typical example shown below (all at end of this presentation)
- Worst outliers shown on next slide

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Baseline and noise check

• Channel 10 noise envelope is about twice the size as compared to a typical channel

 Baseline for channel 32 is a very clear periodic fluctuation of about +/- 5 mV





Noisy Channel 10, 5s envelope, 2.8mV





Zoom in on envelope shows that time structure is not very sharp (voltage versus time has low slope)

Noisy channel 10, 30 mV trigger



• Signal has sharp time structure



Trigger

Conversions:

- 5.33 keV per mV
- 2.6 keV per FADC channel

A threshold of 240 keV implies 45 mV from bottom of signal to trigger

A trigger set to 30 mV would require a signal bottom within 15 mV of nominal



Noisy channel 10, 30 mV trigger

Te<u>k</u> Stop

10mV/Div, 40 ns/Div 15 min envelope



12 Oct 2019

10

• Want distance between baseline and bottom < 15 mV

Large baseline channel 32, 30 mV trigger

10mV/Div, 40 ns/Div 15 min envelope



• Want distance between baseline and bottom < 15 mV 11

Typical channel 3, 30 mV trigger

10mV/Div, 40 ns/Div 15 min envelope



• Need distance between baseline and bottom < 15 mV 12

Remarks

- Did not find any need to switch out the preamps or filter boards ③
- All looks well for TPOL to run using a 30 mV trigger



All scope pictures shown in remaining slides



Channels 1-4





Channels 5-8





Channels 9-12





Channels 13-16





Channels 17-20





Channels 21-24





Channels 25-28





Channels 29-32





Channels 1-2



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Channels 3-4



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Channels 5-6



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Channels 7-8





Channels 9-10







Channels 11-12



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Channels 13-14



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Channels 15-16





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On

10k

Display

Envelope

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Channels 17-18

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Peak Detec

Hi Res

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Envelope

Average

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50.0MS/s

10k point



20.0µs

Waveform

Display

Position

to 0 s

XY Display Off

Delay

On Off

Length

10k

Mode

Average





Channels 19-20







Channels 21-22



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Channels 25-26



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Channels 27-28



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Channels 29-30



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Channels 31-32









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